

Monthly Progress Report
Corrective Measures Study (CMS) for Potential Release Site (PRS) 16-021(c)
January 2000

This report summarizes Los Alamos National Laboratory (LANL) activities that were completed during January of fiscal year (FY) 2000 on the CMS for PRS 16-021(c), the 260 outfall. Both the activities described in the CMS plan ([LA-UR-98-3918]), which was submitted to the New Mexico Environment Department-Hazardous and Radioactive Materials Bureau [NMED-HRMB] on 9/30/98, and approved by NMED-HRMB on 9/8/99), and other related activities are described herein.

Description of Activities and Contacts

RCRA Facility Investigation (RFI) Report and CMS Plan— There was no new activity.

Best Management Practices (BMPs)—BMPs were inspected weekly during January. The BMPs were in good condition. All of these BMPs, including straw bales, diversion dams, and diversion piping, have been designed to minimize run-on and runoff from the contaminated outfall area.

CMS Hydrogeologic Investigations—CMS hydrogeologic investigations include ongoing Phase II RFI sampling as well as continuing investigations outlined in the CMS plan.

The ongoing Phase II RFI sampling included sampling the Sanitary Wastewater System Consolidation (SWSC) Spring, Burning Ground Spring, and Martin Spring every other day for bromide, other anions, and stable isotopes. The analyses from the January sampling are in process. No new bromide breakthrough has been observed in samples to date. The flow in SWSC spring is at a very low level.

The wells, both alluvial and deep, were checked weekly for water level and presence of water. Four of the five alluvial wells contained water; the exception was still alluvial well 2655, which is located in the steam plant drainage. None of the four intermediate-depth boreholes contained water.

In January, no samples from precipitation events were collected because there was no significant rainfall or snow.

The flow-integrated ISCO samplers in the TA-16 springs were sampled and the samples were submitted for laboratory analysis.

The three alluvial boreholes were drilled in Martin Spring Canyon. Only one of the three boreholes contained alluvial water. This was at the location near the K-Site wetland.

The site security plan for CdV-R-15-3 was completed and approved. Utilities surveys were completed at the drill site. Field work was begun. A culvert and an access road were installed and the auger drilling was completed. The surface casing was installed and grouted in place. This surface casing extends to a depth of 180 ft with a total augered depth of 30 ft. Plans to provide power and other utilities to the site continued to be developed.

Ecological Risk Pilot–

Ecological risk screening results were briefly reviewed by the ER Ecorisk Task Leader. Work is progressing to sort the results into a form that will be useful for sharing with NMED.

CMS Bench and Pilot Studies–Bench and pilot studies continued in collaboration with the Innovative Treatment Remediation Demonstration (ITRD) Program. The ITRD HE program is focused on two DOE sites: LANL and Pantex. Five studies are now ongoing under the auspices of ITRD, all of which may benefit the PRS 16-021(c) CMS:

1. A study of the passive barrier technology of Stormwater Management, Inc., which is potentially useful for removing HE and barium from waters. Water from Cañon de Valle is being used in the study.
2. A study of chemical treatment of HE-contaminated soil using zero-valent iron (ZVI). This is being completed by the University of Nebraska/H&H Ecosystems using PRS 16-021(c) soil. This soil was taken from a moderately contaminated location within PRS 16-021(c) and does not constitute a RCRA-regulated hazardous waste (based on results from laboratory analysis).
3. A study of in situ anaerobic bioremediation of HE using gas-phase carbon additions. This study is being completed by Idaho National Engineering and Environment Laboratory (INEEL), together with Texas Tech University, using Pantex soil and a Pantex field site.
4. A study of ex situ anaerobic bioremediation of Pantex soils using the W. R. Grace process, which combines anaerobic bioremediation with a ZVI treatment.
5. A study of HE composting. Amendments appropriate to northern New Mexico are being tested on clean soils.

Regarding the first study, based on the meeting of December 1999, LANL representatives and Jim Phelan of Sandia National Laboratory (SNL) investigated whether a solar powered pump would be feasible to reduce the treatment system footprint. This was deemed not to be feasible. LANL scheduled a February 2, 2000 meeting with the Army Corps of Engineers and the Surface Water Bureau to discuss this issue.

Regarding the second study, the University of Nebraska/H&H Ecosystems study of ZVI remediation in building TA-16-224 was completed. Samples from all experiments were collected; these were submitted for laboratory analysis. Analytical results of these samples are pending. The process appears to have been effective for RDX and TNT but ineffective for HMX.

No new results were received on the third or fourth studies.

Regarding the fifth study, due to the equivocal results from the ZVI pilot test for HMX, LANL and ITRD personnel have decided to implement a series of tests of HE composting as a replacement for the ZVI process. The first of these tests is being performed on HE-free material to identify appropriate composting amendment mixes for northern New Mexico environmental media. Initial results suggest that a mixture of manure, wood chips and vegetable matter will be effective. Several conference calls to discuss composting were held between LANL representatives, SNL representatives, and Pantex representatives.

Interim Measure (IM) – Weekly ER Project meetings were held to discuss IM Planning. A meeting was held with site representatives on January 26, 2000. The site representatives were in general agreement with the proposed IM strategy. The site reps indicated that the remote excavator would probably have to be used for more of the IM than originally planned by LANL. They wanted the soil to be blended to a level of 5% HE rather than 10% HE due to safety considerations.

NMED approval of the health-based contained in determination was received on January 7, 2000. The legal and security reviews of the IM Plan were received. Editing was completed. The draft IM Plan was submitted for ESH and DOE reviews.

Preparations for IM fieldwork continued. The site-specific health and safety plan (SSHASP) was approved. The waste characterization strategy form (WCSF) has been modified to reflect current developments on the IM. The readiness review was held on January 14, 2000. Mobilization to begin site preparations such as installation of access roads, deployment of staging pads, and tree cutting was discussed in a telephone call with HRMB representatives on January 18, 2000. HRMB suggested that these ‘non-RCRA’ activities could begin without formal written notification. Field work will begin as soon as the facility tenant agreement is finalized.

Public and Stakeholder Involvement– There were no public or stakeholder involvement activities during January 2000.

Percentage of CMS Completed

LANL estimates that 45% of the CMS has been completed to date. Note that this percentage does not reflect the deep wells that will be drilled per the CMS plan addendum.

Problems Encountered/Actions to Rectify Problems

CMS Hydrogeologic Investigations

Problem (1) The lack of a completed well at R-25 remains a significant concern to the TA-16-260 team.

Problem (2) The change from mud drilling to casing-advance air rotary drilling of deep borehole CdV-R-15-3 raised significant logistical issues related to drilling the borehole. LANL does not currently have access to sufficient drill rigs and drill string to support parallel completion of two deep (greater than 1000 ft) wells.

Action to Rectify Problem (1): The screens have been installed and the well has been purged. The well is now being readied for Westbay installation.

Actions to Rectify Problem (2): The drilling support facility is investigating three possible actions to speed drilling the deep boreholes: (1) drilling during two daily shifts rather than one; (2) obtaining additional drill string; and (3) procuring an additional dual air rotary rig. All of these options are being pursued.

CMS Bench and Pilot Studies

Problem (1) The ZVI pilot test did not work effectively for HMX. The additional ZVI added during November did not significantly improve breakdown for HMX.

Problem(2) LANL is concerned that 401/404 permit issues may impede implementation of the Stormwater Management Unit pilot scale deployment.

Action(s) to Rectify Problem (1). Composting is being investigated in place of ZVI.

Actions to Rectify Problem (2) LANL will meet with the Army Corps of Engineers and the Surface Water Bureau to resolve 401/404 issues

IM

Problem (1) Several regulatory issues still need to be resolved prior to implementation of the IM.

Problem(2) Delays at MDA-P will delay availability of the remote excavator. This will delay portions of the IM.

Problem(3) There are still unresolved 401/404 issues associated with the IM.

Action(s) to Rectify Problem (1) LANL is meeting frequently with NMED representatives to solve these regulatory issues. The IM Plan will be submitted without resolution of these issues to enable HRMB to better review the entire IM process.

Action(s) to Rectify Problem (2) LANL will wait until the remote excavator is available.

Action(s) to Rectify Problem (3) LANL will work closely with the Surface Water Bureau on this.

Key Personnel Issues

None.

Projected Work for February 2000

RFI Report and CMS Plan

- No work is scheduled for this month.

BMPs

- Inspection of existing BMPs following significant precipitation events will continue.

CMS Hydrogeologic Investigations

- Continued bromide sampling of springs.
- Weekly checking of water levels and presence of water in alluvial and deep wells.
- Sampling of flow-integrated ISCO samplers.
- Continued precipitation monitoring and sampling for stable isotopes.
- Data analysis
- Site preparation at CdV-R-15-3

Ecological Risk Pilot

- Work to-date is being documented.
- Preparations are underway for a Problem Formulation meeting with NMED.

CMS Bench and Pilot Studies

- Modification of Stormwater Management pilot design.
- Continuation of composting tests on HE-free materials.
- Initiation of study designs for stabilization and phytoremediation.

IM

- Submission of the IM plan (pending DOE review).
- Site preparation activities.

Public and Stakeholder Involvement

- No public or stakeholder involvement activities are anticipated for January 2000. There will be a general ER availability session on February 23, 2000.